

Patent Claims

1. A method for testing the function of a hydraulic valve (1), characterized in that a pressurized gaseous medium is used as the test medium.
2. The method as claimed in claim 1, characterized in that the pressure of the gaseous test medium can be set and is constant during the testing.
3. The method as claimed in claim 1 or 2, characterized in that the hydraulic valve (1) has a pressure connection (P), at least one reservoir connection (T), at least one consumer connection (A, B) and a displaceable control piston (7) for controlling the volumetric flow (\dot{V}) of a pressure medium flowing from the pressure connection (P) to the reservoir connection (T) or consumer connection (A, B), the gaseous test medium being introduced into the hydraulic valve (1) at the pressure connection (P).
4. The method as claimed in claim 3, characterized in that, to test the hydraulic valve (1), the control piston (7) is displaced out of an initial position into a second position and out of the second position back again into the initial position.
5. The method as claimed in claim 4, characterized in that the displacement speed of the control piston (7) during the testing of the hydraulic valve (1) is constant.
6. The method as claimed in one of claims 1 to 5, characterized in that the control piston (7) has a first consumer connection (A)

and a second consumer connection (B), and in that, during the displacement of the control piston (7) out of the initial position into the second position, the consumer connections (A, B) are medium-connected to one another.

7. The method as claimed in claim 6, characterized in that, during the displacement of the control piston (7) out of the second position back into the initial position, the first and second consumer connections (A, B) are in each case connected to the atmosphere.

8. The method as claimed in one of claims 1 to 7, characterized in that, during the displacement of the control piston (7) out of the initial position into the second position and out of the second position back again into the initial position, the volumetric flow (\dot{V}) of the gaseous test medium is determined as a function of the time (t) and/or of the distance (x1, x2) covered by the control piston (7), and in that the volumetric flow values/characteristic curve or curves determined are compared with desired and/or limit values or with at least one desired and/or limit value characteristic curve.

9. The method as claimed in one of claims 3 to 8, characterized in that the control piston (7) is acted upon or can be acted upon with force by means of at least one spring element (27), in that, during the displacement of the control piston (7) out of the initial position into the second position and out of the second position back again into the initial position, the force (F) to be applied for this purpose is determined as a function of the time (t) and/or of the distance (x1, x2) covered by the control piston

(7), and in that the force values/characteristic curve or curves determined are compared with desired and/or limit values or with at least one desired and/or limit value characteristic curve.

10. The method as claimed in claim 9, characterized in that the force/hysteresis characteristic curve of the hydraulic valve (1) is determined, preferably is calculated from the plotted values of the force (F) to be applied for displacing the control piston (7) out of the initial position into the second position or out of the second position into the initial position.

11. The method as claimed in one of the preceding claims, characterized in that the sensing rate of the volumetric flow (\dot{V}) or of the force (F) applied to the control piston (7) can be set during the testing operation.

12. The method as claimed in one of claims 1 to 11, characterized in that measurement data detection and/or measurement data evaluation takes place online.

13. A test bench (31) for testing the function of hydraulic valves (1), for carrying out the method as claimed in one of claims 1 to 12.